



Emergency and Incident Response



**Sandia
National
Laboratories**

Learning Outcome

Learning Outcomes

- Identify common biological exposure incidents that occur in the laboratory. [C1]
- Describe the steps required for spill cleaning in a biological laboratory. [C2]
- Outline the procedures involved in reporting biological exposure incidents. [C1]
- Practice clean up of biological spills in a laboratory using the standard procedures. [P2]
- recognize the risks of biological exposure in the event of a spill. [A1]

A case in Dr. Sam's Lab





Not just a bit of water on the floor.....

.....But an INCIDENT in a LABORTORY



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Emergencies and Incidents

- ▶ Unexpected or unplanned event that may result in physical harm, death, losses and damage of properties.
- ▶ Even when carrying out low-risk work and following all core requirements for laboratory biosafety, incidents can still occur.

Why Emergency/incident response is IMPORTANT?

4 Reduce	1 Acceleration
Likelihood of exposure	Resumption of normal operations
Release of a biological agent	
Consequences	
Damage to equipment or the environment	

What should you do in case of an incident?

BASIC THINGS TO REMEMBER

- ▶ Raise the alarm
- ▶ Inform the person-in-charge
- ▶ Employ on-site emergency response (use fire extinguishers, etc)
- ▶ Call emergency services
- ▶ Manage crowd, including evacuation (where necessary)
- ▶ Evacuate people with disabilities



EMERGENCY EQUIPMENT IN THE LABORATORY



Eye Wash Station



Safety Shower



Spill Kit

Personnel must be trained to operate emergency equipment!



Fire Safety Equipment



First Aid Kit

Biological spill response

What?

- Risk group
- Amount
- Combination of hazardous materials

Who?

- Laboratory worker
- Spill response team
- Biosafety officer



BIOLOGICAL SPILL KIT CHECKLIST

- ▶ Disposable Gowns (water-proof, back-tie)
- ▶ Gloves (2 layers if necessary)
- ▶ Disposable shoe covers (optional)
- ▶ N-95 respirator (medical clearance & fit-tested)
- ▶ Eye goggles or full face shield that fits over N-95 respirator
- ▶ Effective disinfectant agent (i.e. 10% bleach made fresh daily, Clidox, 2% Amphyl, etc)
- ▶ Absorbent paper towels, may include diking material or spill pillows for large spills
- ▶ Small disposable broom with a dustpan, tongs, or forceps for sharps
- ▶ Biohazard waste bags
- ▶ Sharps container
- ▶ A waterproof copy of the Spill Response and Cleanup procedures SOP

Essential Steps in Cleaning A Spill

Alert Others

Keep Spill
from
Spreading

Disinfect
Appropriately

Allow for
Appropriate
Contact Time

Clean spills
Outside in

Log and
Report
Incident

Video on how to clean the spill

- [Biological Spill Clean Up - YouTube](#)



Biological Spill Kit

- ▶ Commercial kits available but you may “DIY” - do it your own spill kit.
- ▶ DIY Spill Kit:

Different materials will be provided. Students will be asked to select the items to be placed in a spill kit storage box.

Biological Spill Kit

- ▶ “DIY” - do it yourself:
 - ▶ Personnel protective clothing (PPE)
 - ▶ small disposable broom with dustpan, tongs
 - ▶ biohazard waste bags
 - ▶ suitable disinfectant agent
 - ▶ paper towels or other absorbent material
 - ▶ warning signs
 - ▶ protocol for cleaning



Role play

- ▶ Now, go back to the story in Dr. Sam's lab. What would you do?
- ▶ Students will be playing different roles: Dr. Sam, Anabelle and James

References

1. Centre for Disease Control and Prevention (CDC). Emergency Preparedness Resource Guide for laboratories. CDC publication
2. Laboratory Biosafety manual, 4th Edition (2020). Geneva. WHO Publication
3. Biosafety Spill Response guide (2013) New Haven. Yale Edu Publication

Thank you

